KLEINFELDER
Bright People. Right Solutions.

TRANSMITTAL

RECEIVED
MAY 15 2008
By DEQ

To: Mr. Bill Rogers
IDEQ
1410 N. Hilton
Boise, Idaho 83702

Date: May 14, 2008
Reference No: 93476
Copies to:

Subject: Report

We are sending the following: ☒ **Attached** ☐ **Under separate cover**

(1) Pre-Permit Construction Approval and Permit to Construct Application

Via:
- ☒ Messenger/Courier
- ☐ First Class Mail
- ☐ FedEx
- ☐ United Parcel
- ☐ DHL
- ☐ Lone Star Overnight
- ☐ Freight
- ☐ Other

Transmitted:
- ☐ As Requested
- ☐ For Approval
- ☒ For Your Use
- ☐ For Review & Comment

Remarks: Check No. 64055 Included for Application Payment

By: _____
Andrew Provant

2315 S. Cobalt Point Way, Meridian, ID 83642 ▪ 208.893.9700 ▪ 208.893.9703 fax

Cargill

May 12, 2008

Department of Environmental Quality
Air Quality Division
Stationary Source Program
1410 North Hilton
Boise, ID 83706-1255

ATTN: Air Quality Division

RE: 15-Day Pre Permit Construction Approval Application

Dear DEQ,

We are proposing to construct an anaerobic digester at the East Valley Cattle facility that will collect the biogas from the cow manure and transform it into renewable energy through the use of four reciprocating engines and generators. Documentation from Kleinfelder is included in the application demonstrating that they have performed the screening level modeling and found that the proposed emissions will not cause or significantly contribute to a violation of any air quality standards. A copy of the approved modeling protocol and a copy of the public notice meeting are also attached. Please review the attached application for the pre-permit construction approval and let us know if you have any questions.

Kyle Juergens with Andgar Corporation is our representative for this application. Please send all correspondence to him. (360-366-9900 or kylej@andgar.com)

Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Sincerely,

5-12-08

Ryan Coleman
CARGILL ENVIRONMENTAL FINANCE

KLEINFELDER
Bright People. Right Solutions.

2315 S. Cobalt Point Way
Meridian, ID
83642

p| 208.893.9700
f | 208.893.9703

kleinfelder.com

PRE-PERMIT CONSTRUCTION APPROVAL AND PERMIT TO CONSTRUCT APPLICATION CARGILL ENVIRONMENTAL FINANCE EAST VALLEY CATTLE DECLO, IDAHO

May 14, 2008

Kleinfelder Project Number: 93476

All Rights Reserved
Copyright 2008

This document was prepared for use only by the client, only for the purposes stated, and within a reasonable time from issuance. Non-commercial, educational and scientific use of this report by regulatory agencies is regarded as a "fair use" and not a violation of copyright. Regulatory agencies may make additional copies of this document for internal use. Copies may also be made available to the public as required by law. The reprint must acknowledge the copyright and indicate that permission to reprint has been received.

2315 S. Cobalt Point Way
Meridian, ID
83642

p| 208.893.9700
f | 208.893.9703

kleinfelder.com

Prepared for:

CARGILL ENVIRONMENTAL FINANCE
Mail Stop 139 12700 Whitewater Dr.
Minnetonka, Minnesota 55343

PRE-PERMIT CONSTRUCTION APPROVAL AND PERMIT TO CONSTRUCT APPLICATION for CARGILL ENVIRONMENTAL FINANCE, EAST VALLEY CATTLE

2735 East 700 South
Declo, Idaho 83323

Kleinfelder Job No: 93476

Prepared by:

Kelli Wetzel
Air Quality Engineer

Reviewed by:

Andy Marshall, P.E.
Environmental Group Manager

May 14, 2008

KLEINFELDER WEST
2315 S. Cobalt Point Way
Meridian Idaho 83642
(208) 893-9700

KLEINFELDER
Bright People. Right Solutions.

TABLE OF CONTENTS

APPENDICES

Appendix A: Permit to Construct Application Forms

Form CS:	Cover Sheet
Form GI:	Facility Information
Form EU1:	Industrial Engine Information (Engine 1)
Form EU1:	Industrial Engine Information (Engine 2)
Form EU1:	Industrial Engine Information (Engine 3)
Form EU1:	Industrial Engine Information (Engine 4)
Forms EI-CP1 – EI-CP4:	Emissions Inventory – Criteria Pollutants
Form PP:	Plot Plan
Forms MI1 – MI4:	Modeling
Form FRA:	Federal Regulation Applicability

Appendix B: Modeling Protocol

Appendix C: Modeling Protocol Approval Letter

Appendix D: Emission Calculations and Screen3 Output

Appendix E: Affidavit of Publication – Public Notice Meeting

Appendix F: EPA letter regarding 40 CFR 60, Subpart JJJJ

1 PROCESS DESCRIPTION

Cargill Environmental Finance proposes to construct an anaerobic digester renewable energy system on property leased from East Valley Cattle. The site is located in Declo, Idaho and presented in Figures 1 through 3. The facility is within Cassia County, Idaho which is designated attainment or unclassifiable for criteria pollutants.

1.1. Process Description

Manure from the feedlot will be pumped into the anaerobic digester where the naturally occurring digestion process will result in the production of methane gas. Methane gas will be collected in the anaerobic digester and used as fuel in four Genset reciprocating internal combustion engines. The generators will produce electricity that will be sold to the local utility. Heat produced from the Genset electrical generators will be used to maintain the operating temperature in the digester and as process heat for the feedlot. The post digester manure is separated so the liquid portion can be utilized for irrigation and fertilizer while the solids are utilized as bedding and a soil amendment. A process flow diagram is presented in Figure 4.

The project includes the installation of the manure digester and generators. East Valley Cattle will operate the feedlot and manage the solids and wastewater generated by the process. This permit application is being submitted to allow construction and operation of the digester and electrical generating system. Air emissions from the system are released through the four stacks associated with the Genset generators and an emergency flare that would be used in the event the generators are taken offline. Characteristics of the emissions from all of the emission points are the same.

The proposed anaerobic digester renewable energy system will be constructed by Andgar Corporation and operated by Cargill Environmental Finance on property leased from East Valley Cattle. The generators emissions will result in criteria pollutant emissions of carbon monoxide, particulate matter, nitrogen oxides, sulfur dioxide and volatile organic compounds. The generators will also emit toxic air pollutants (TAPs).

1.2. Facility Classifications

SIC: 4911
The facility is classified by the Standard Industrial Classification # 4911 for Electric Services.

NAICS: 237130
The facility is classified by the North American Industry Classification System # 237130 for Alternative Energy Structure Construction.

2 PRE PERMIT CONSTRUCTION ELIGIBILITY

Pre-permit construction approval is available for new minor sources that do not use emissions netting to stay below major source levels. The proposed project meets all of the pre-permit construction eligibility requirements. The emission calculations and data source reference information are provided in this application.

Andgar is requesting from IDEQ the ability to commence construction of the source before receiving the required permit to construct. The owner understands that proceeding with construction prior to receiving the required permit to construct is at their own risk. This request is presented in the cover letter for this application.

The pre-permit construction process requires a meeting with DEQ representatives before submitting the pre-permit construction permit. Kleinfelder representatives met with Kevin Schilling, Bill Rogers and Harbi Elshafei of IDEQ on April 9, 2008 to discuss the project and pre-permit application.

An informational meeting has been scheduled at the Best Western Hotel and Convention Center in Burley, Idaho on May 15, 2008. The meeting announcement was published in the Times-News, which is a newspaper with general circulation in Twin Falls. A copy of the notices published in the Times-News is presented in Appendix D.

3 APPLICABLE REQUIREMENTS

3.1. Major or Minor Facility Designation

The proposed project is considered a minor facility based on it's potential to emit. Please see detailed emission calculations in Appendix D.

Designated: ____Yes _✓_ No
Potential To Emit: 89.8 tons/yr
Pollutant which defines Potential to Emit: Carbon Monoxide

3.2. Federal Requirements

No federal regulations other than NSPS SubPart JJJJ (40 CFR 60) are applicable to the proposed project.

The engines will be manufactured after June 1, 2008 and have a capacity greater than 500 hp but less than 1,350 hp and construction will commence after June 12, 2006. Therefore, in accordance with 40 CFR 60.2430, 40 CFR 60, Subpart JJJJ is applicable to this project.

The following NSPS emission standards are applicable to the proposed generators

Table 3-1 Summary of 40 CFR 60, Subpart JJJJ Table 1.

Engine Type and Fuel	Maximum engine power	Manufacturer Date	Emission standards[a]					
			g/HP-hr			ppmvd at 15% O_2		
			NO_x	CO	VOC[b]	NO_x	CO	VOC[b]
Digester Gas (except lean burn 500≥HP<1,350)	HP≥500	7/1/2007	3.0	5.0	1.0	220	610	80
Digester Gas Lean Burn	500≥HP<1,350	1/1/2008	3.0	5.0	1.0	220	610	80

[a] Owners and operators of stationary non-certified SI engines may choose to comply with the emission standards in units of either g/HP-hr **or** ppmvd at 15% O_2.
[b] For the purposes of this subpart, when calculating emissions of volatile organic compounds (VOC), emission of formaldehyde should not be included.

The requirements of 40 CFR 60.4233(f) are applicable to this project. A maintenance plan and records of conducted maintenance will be prepared and available at the site. An initial performance test will be conducted and subsequent performance testing conducted every 8,760 hours or 3-years which ever comes first. Performance testing will be completed in accordance with the procedures in 40 CFR 60, Subpart JJJJ, Table 2.

40CFR 60.4243(g) does not apply to this application. The engines do not require three-way catalysts /non-selective catalytic reduction to meet the emission standards because they are lean burn engines and not rich burning engines. EPA's interpretation of the applicability of this requirement for these type of engines is included in Appendix F.

Notifications will be made in accordance with the NSPS general provisions and Section 60.4245 of 40 CFR 60, Subpart JJJJ.

3.3. Rules for the Control of Air Pollution in Idaho (IDAPA 58.01.01)

IDAPA 58.01.01.123 Certification of Documents
Based on information and belief formed after reasonable inquiry, all statements and information contained in the application are true, accurate, and complete.

IDAPA 58.01.01.128 Confidential Information
The information submitted in the application is subject to public disclosure unless submitted under a secret trade claim.

IDAPA 58.01.01.130 Startup Shutdown, Scheduled Maintenance, Safety Measures, upset and Breakdown
If an excess emission event occurs during startup shutdown, scheduled maintenance, safety measures, upset or breakdown, Cargill Environmental Finance will comply with IDAPA 58.01.01.130 through IDAPA 58.01.01.136.

IDAPA 58.01.01.156 Total Compliance
Cargill Environmental Finance understands that when more than one section of rules applies then all such rules must be met to be considered in compliance.

IDAPA 58.01.01.201 Permit to Construct Required
Cargill Environmental Finance will obtain a permit to construct from the Department which satisfies the requirements of Sections 200 through 208. The proposed project does not meet the permit to construct exemption criteria contained in Sections 220 through 223 of the Rules.

IDAPA 58.01.01.203 Permit Requirements for New and Modified Stationary Sources
This permit application demonstrates that the project will comply with all applicable emissions standards, ambient air quality standards, and toxic increments. See the modeling protocol report attached in Appendix B.

IDAPA 58.01.01.210 Demonstration of Preconstruction Compliance with Toxic Standards
This permit application demonstrates preconstruction compliance with the Toxic Standards. See the ambient impacts assessment in Section 5.

IDAPA 58.01.01.223 Exemption Criteria, Recordkeeping, and Reporting for Toxic Air Pollutant Emissions
The proposed project does not meet the exemption criteria specified in sections 01 through 04 of Section 223.

IDAPA 58.01.01.300 Procedures and Requirements of Tier I operating Permits
The facility is not considered a major source and not subject to these requirements.

IDAPA 58.01.01.577 Ambient Air Quality Standards for Specific Air Pollutants
The proposed project meets the ambient air quality standards specified in Section 577. See the ambient impacts assessment in Section 5.

IDAPA 58.01.01.578 Designation of Attainment, Unclassifiable, and Nonattainment Areas
The proposed project is located in Cassia County which is currently classified as unclassifiable or attainment for criteria pollutants. Cargill Environmental Finance acknowledges that DEQ annually reviews areas for classification.

IDAPA 58.01.01.585 Toxic Air Pollutants Non-Carcinogenic Increments
The proposed project will result in emissions of non-carcinogenic toxic air pollutants including acrolein, isomers of xylene, selenium, styrene, toluene, and trichloroethylene. These emissions will not exceed their respective screening emission levels with the exception of trichloroethylene. See the ambient impacts assessment in Section 5.

IDAPA 58.01.01.586 Toxic Air Pollutants Carcinogenic Increments
The proposed project will result in potential emissions of carcinogenic toxic air pollutants including acetaldehyde, benzene, dichloromethane, formaldehyde, trichloroethylene,

nickel and vinyl chloride. The emissions of acetaldehyde does not exceed its screening emission level, however emissions for benzene, dichloromethane, formaldehyde, nickel, trichloroethylene, and vinyl chloride have potential to exceed each of their respective screening emission levels. Modeling results indicate all emissions for carcinogenic toxic air pollutants are below their respective AACCs. See the ambient impacts assessment in Section 5.

IDAPA 58.01.01.590 New Source Performance Standards
Cargill Environmental Finance acknowledges that the proposed project must comply with the NSPS set forth in 40 CFR Part 60. Please see section 3.3 of this application.

IDAPA 58.01.01.591 National Emission Standards for Hazardous Air Pollutants
The proposed project complies with 40 CFR Part 61 and 40 CFR Part 63.

IDAPA 58.01.01.625 Visible Emissions
Cargill Environmental Finance will not discharge any air pollutant which is greater than 20% opacity from the stacks for more than 3 minutes in a 60 minute period. Cargill will comply with specified test methods and procedures.

IDAPA 58.01.01.650 & 651 Rules for the Control of Fugitive Emissions & General Rules
Cargill Environmental Finance will take all reasonable precautions to prevent particulate matter from becoming airborne.

IDAPA 58.01.01.675 & 676 Fuel Burning Equipment – Particulate Matter & Standards for New Sources
The project will not discharge particulate above the applicable grain loading standard.

IDAPA 58.01.01.700--702 Particulate Matter – Process Weight Limitations
The emitting source is not considered process equipment and therefore the regulations do not apply to this source.

IDAPA 58.01.01.760 Rules for the Control of Ammonia from Dairy Farms
The proposed project is located on property leased from East Valley Cattle. The impact analysis for the emissions from the proposed generators demonstrates compliance with applicable standards at the boundary of the leased property. The dairy is owned and operated separately from the generators. Therefore these rules do not apply to this source.

IDAPA 58.01.01.775 Rules for the Control of Odors
All reasonable precautions will be taken to control odors.

4 POTENTIAL EMISSION ESTIMATES

4.1. Equipment and Source Description

Four Genset electrical generators are proposed to be installed adjacent to each other. The four generators are described in Table 4-1. There are no emission controls proposed for the generators.

Table 4-1

Equipment Description

Equipment / Source Description	Emission Controls
Anaerobic Digester & Electric Generators	
Anaerobic Digester	
Capacity: 8,250,000 gallons	Internal Combustion Engines
Throughput: 375,000 gallons per day	(Generator Engines No. 1 - 4)
Biogas Production: 1,140,000 c.f. per day	
Generator Engine No. 1	
Manufacturer: Guascor	
Model: SFGLD 560	
Rated Power: 1057 horsepower	
Ignition Type: Spark	
Generator Engine No. 2	
Manufacturer: Guascor	
Model: SFGLD 560	
Rated Power: 1057 horsepower	
Ignition Type: Spark	None
Generator Engine No. 3	
Manufacturer: Guascor	
Model: SFGLD 560	
Rated Power: 1057 horsepower	
Ignition Type: Spark	
Generator Engine No. 4	
Manufacturer: Guascor	
Model: SFGLD 560	
Rated Power: 1057 horsepower	
Ignition Type: Spark	

4.2. Source Parameters

Each of the generators will have a 10-inch diameter stack extending 27 feet above the ground surface. The vendor estimated, based on the design parameters and modeling the operation of the units, that the typical stack temperatures and velocity will be 628° K and 39.93 meters/second, respectively.

4.3. Emission Factors

The emission factors used to estimate emissions from the generators came from multiple sources including AP-42, EPA's WebFire database and vendor information. The specific vendor information was determined most reliable, since it represents the specific operating conditions and equipment proposed for the project.

AP-42 Section 3.1 has published emission factor data for POTW digester gas-fired stationary gas turbines. In addition, AP-42 Section 3.2 has published emission factors for natural gas fired reciprocating engines. EPA's WebFire database provides limited data from internal combustion engines fueled from POTW digester gas. The WebFire data was collected in the early 1990s and is rated U (unrated)[1] by EPA. It does not provide supporting details about the source and operating conditions.

With the exception of particulate, vendor information was used to estimate emissions for all of the primary pollutants. The PM_{10} and $PM_{2.5}$ emission factors were selected from from AP-42 Section 3.2, Table 3.2 – Uncontrolled Emission Factors for 4-stroke Lean – Burn Engines. The table presents D-Rated PM-10 (filterable) and PM Condensible emission factors for natural gas lean burn reciprocating engines. The PM-10 emissions represent the sum of the PM-10 (filterable) and the PM Condensable fractions, since the condensable fraction is likely less than 10 microns.

TAP emission data from generators using digester gas fuel is likely more representative than data from generators using natural gas fuel. AP-42 Section 3.2, Table 3.1-7 Emission Factors for Hazardous Air Pollutants from Digester Gas-Fired Stationary Gas Turbines presents D-Rated uncontrolled emission factors acetaldehyde, formaldehyde, nickel and selenium.

Other HAPs are presented in the data, but reported as nondetectible. The remaining emission factors were extracted from the EPA WebFire database. This data was identified as the least reliable of the available data. It is unrated by EPA and provides no supporting information to evaluate its relevance to the proposed project.

---

[1] *Emission factor is developed from source tests which have not been thoroughly evaluated, research papers, modeling data, or other sources that may lack supporting documentation. The data are not necessarily "poor," but there is not enough information to rate the factors according to the rating protocol. "U" ratings are commonly found in L&E documents and FIRE rather than in AP 42.*

4.4. Potential to Emit / Emissions Estimates

The potential to emit for the proposed project is shown in Table 4-2. Please see Appendix D for detailed emission calculations.

The generators will emit acrolein, isomers of xylene, styrene, toluene, selenium and trichloroethylene which are non-carcinogenic toxic air pollutants (TAPs) listed in IDAPA 58.01.01.585. The potential emission estimates for these compounds do not exceed their respective TAP screening emission levels (EL) with the exception of trichloroethylene. The generators will also emit acetaldehyde, benzene, dichloromethane, formaldehyde, nickel, trichloroethylene and vinyl chloride which are carcinogenic TAPs listed in IDAPA 58.01.01.586. The potential emission estimates for acetaldehyde does not exceed its TAP EL. However, modeling was conducted for benzene, dichloromethane, formaldehyde, nickel, trichloroethylene, and vinyl chloride because potential emission estimates exceed their respective TAP ELs. Modeling demonstrates compliance with the Acceptable Ambient Concentration (AAC).

Table 4-2

Potential Emission Rates for Genset Generators

Pollutant	PTE (lbs/hr)	PTE (tons/yr)
PM_{10}	0.28	1.22
SO_2	20.05	87.8
NO_x	9.32	40.8
CO	20.51	89.8
VOC	9.32	40.8
Acetaldehyde	1.5E-03	6.4E-03
Acrolein	7.2E-04	3.2E-03
Benzene	1.9E-02	8.4E-02
Dichloromethane	2.8E-03	1.2E-02
Formaldehyde	5.3E-03	2.3E-02
Isomers of Xylene	3.8E-03	1.7E-02
Nickel	5.6E-05	2.4E-04
Selenium	3.1E-04	1.3E-03
Styrene	1.5E-03	6.4E-03
Toluene	7.3E-03	3.2E-02
Trichloroethylene	5.6E-04	2.4E-03
Vinyl Chloride	1.6E-03	6.8E-03

4.5. Emission Limits

The concentration of the Hydrogen Sulfide (H_2S) entering the generators from anaerobic digester shall not exceed 2,500 ppm. Cargill Environmental Finance proposes to perform the following to monitor the quantity of hydrogen sulfide (H_2S) produced by the anaerobic digester:

- Within 120 days of startup, we shall install, calibrate, maintain, operate, and record an H_2S gas monitor that shall be placed down stream of digester and upstream of the electric generators, and the biogas flare to measure the H_2S concentrations in the biogas produced by the anaerobic digester. The monitor shall be installed in accordance with the O&M manual and the manufacturer's specifications.

- Calibration of the H_2S monitor shall be performed and recorded semi-annually or per manufacturer's recommendations.

- The results of the H_2S concentrations from the H_2S monitor shall be recorded once per week. The H2S monitoring shall be re-evaluated after reaching maximum operating capacity and review of H_2S concentration data. The frequency may be modified with IDEQ approval.

The H_2S produced by the digester is based on the biogas production of 1,140,000 cubic feet of biogas per day. This is the maximum biogas that the digester will produce in one day based on the production in our other digesters in operation.

Cargill Environmental Finance proposes to perform the following to monitor the volume of biogas produced by the anaerobic digester per day:

- Within 120 days of startup a gas flow meter will be installed, calibrated, maintained, and operated. It will be placed down stream of digester and upstream of the electric generators, and the biogas flare to measure the amount of biogas produced by the anaerobic digester. The monitor will be installed in accordance with the O&M manual and the manufacturer's specifications.

- Calibration of the gas flow meter will be performed and recorded semi-annually or per manufacturer's recommendations.

- The results of the gas flow meter will be recorded once per day. The biogas volume monitoring will be reevaluated after reaching maximum operating capacity and review of biogas volume data.

5 AMBIENT IMPACT ASSESSMENTS

Air quality modeling was conducted consistent with the Idaho Department of Environmental Quality (IDEQ) Dispersion Modeling Guidelines (Guidelines), revised December 31, 2002, and the general Ambient Air Quality Modeling Protocol submitted to IDEQ and approved April 19, 2008. The Screen3 output file is attached in Appendix D.

The tables below show the modeled results of the ambient air impacts from the proposed source emissions. The modeled impacts from criteria pollutants are compared to National Ambient Air Quality Standards (NAAQS). The modeled impacts from TAPs are compared to State of Idaho AACs.

Based on the analysis performed, the proposed stationary source will not cause or significantly contribute to a violation of any ambient air quality standard and demonstrates pre-construction compliance with IDAPA 58.01.01, Section 161 with regards to TAP emissions.

Table 5-1

Modeling Results for Criteria Pollutants

	SO_2			PM_{10}		CO		NO2	Pb
	3-Hr	24-Hr	Annual	24-Hr	Annual	1-Hr	8-Hr	Annual	Qtrly
Modeled	664.9	295.5	55.1	4.1	0.8	755.8	529.0	20.6	n/a
Background	34	26	8	73	26	3,600	2,300	17	n/a
Total	698.9	321.5	67.1	77.1	26.8	4,355.8	2,829.0	37.6	n/a
NAAQS	1,300	365	80	150	50	40,000	10,000	100	1.5

KLEINFELDER
Bright People. Right Solutions.

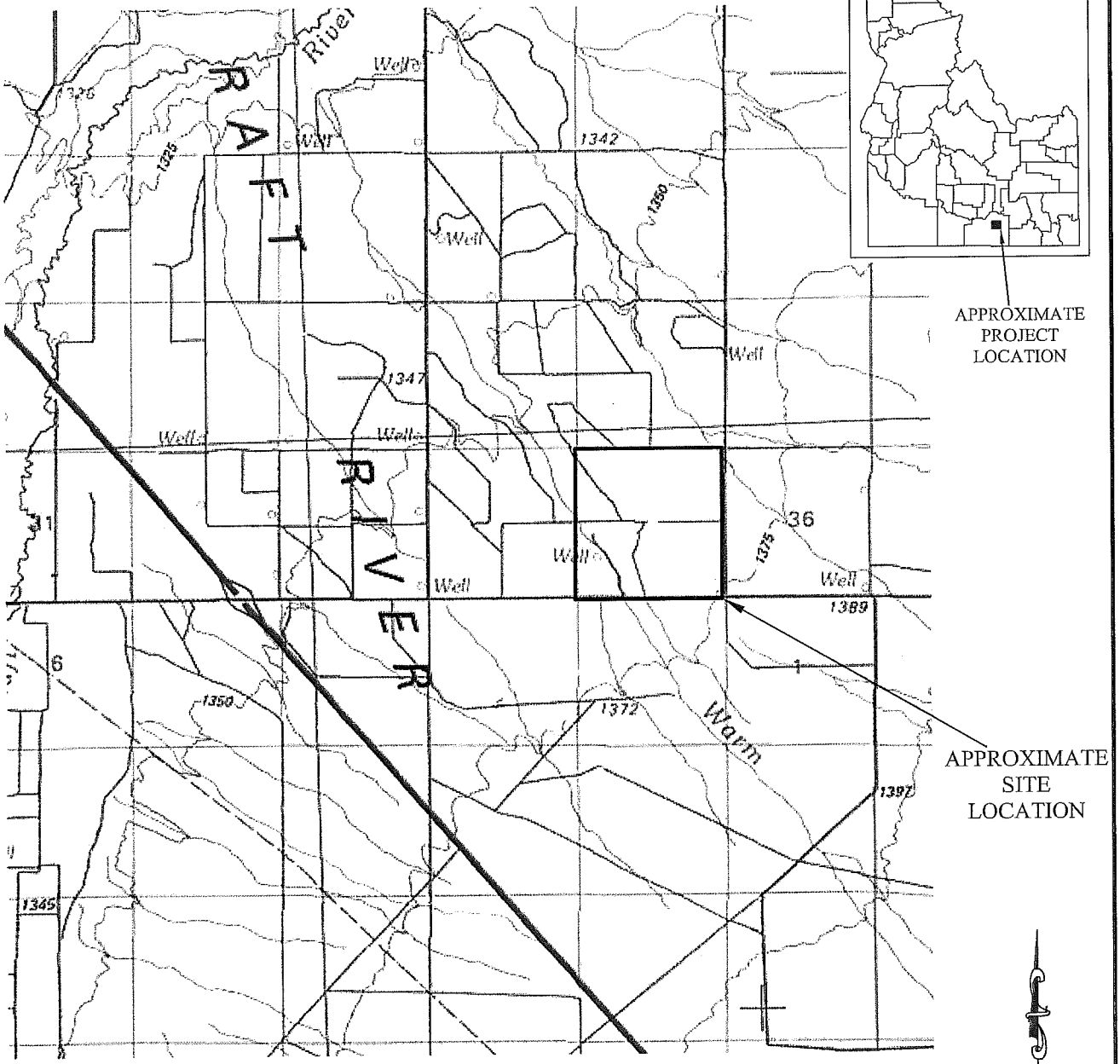
Table 5-2

Modeling Results for TAPs

Pollutant	Modeled Ambient Conc	AAC
Acetaldehyde	Below TAP EL	n/a
Acrolein	Below TAP EL	n/a
Benzene	0.09	0.12
Dichloromethane	0.013	0.24
Formaldehyde	0.024	0.077
Isomers of Xylene	Below TAP EL	n/a
Nickel	0.0003	0.0042
Selenium	Below TAP EL	n/a
Styrene	Below TAP EL	n/a
Toluene	Below TAP EL	n/a
Trichloroethylene	24 hour 0.008 Annual 0.003	24 hour 13,450 Annual 0.77
Vinyl Chloride	0.007	0.14

KLEINFELDER
Bright People. Right Solutions.

FIGURES

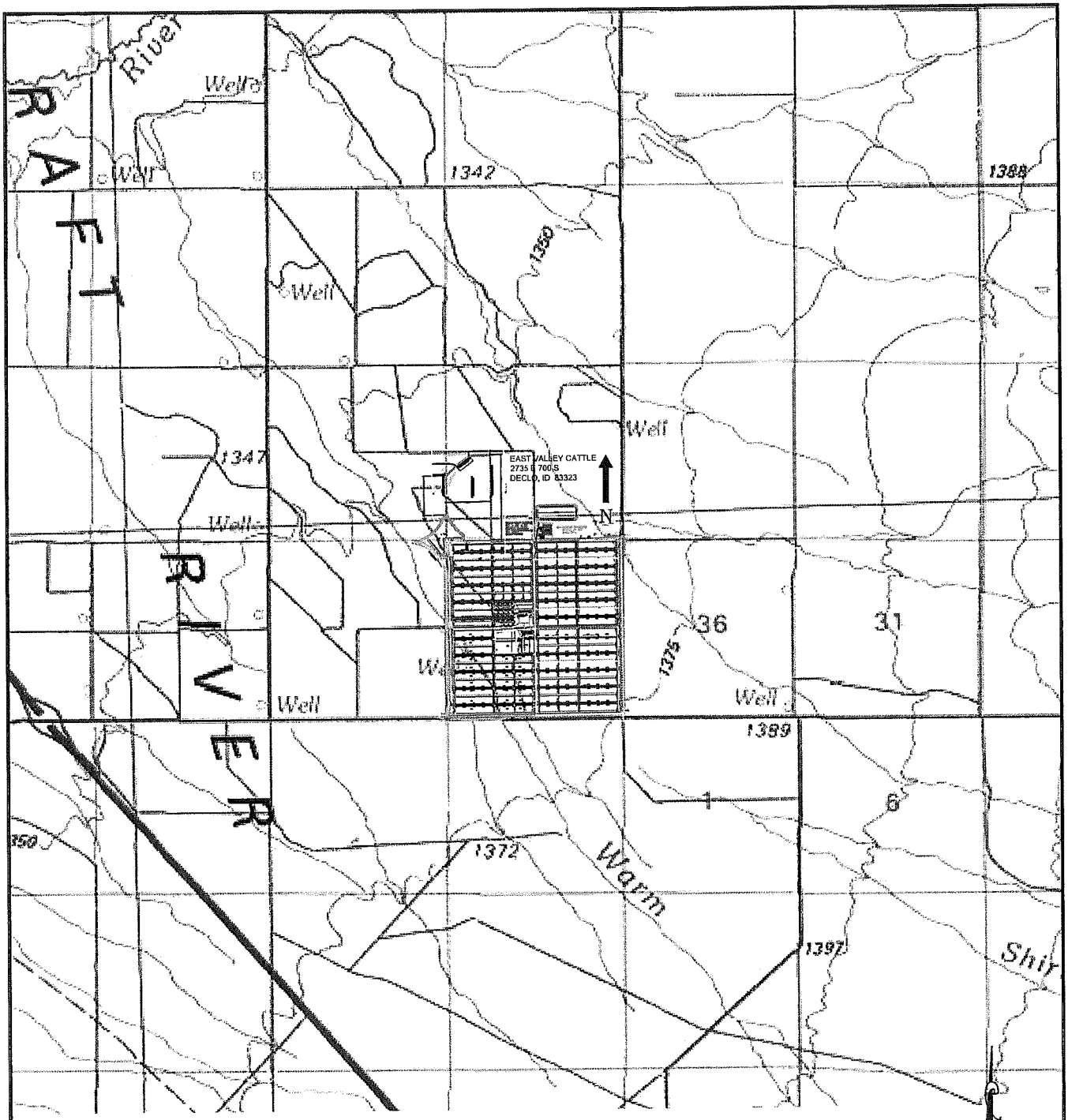


SOURCE: National Geographic TOPO! Maps, 100K Series

2 1 0 1 2

APPROXIMATE SCALE IN MILES

KLEINFELDER 2315 S. Cobalt Point Way Meridian, Idaho 83642 PH. 208-893-9700 FAX. 208-893-9703 www.kleinfelder.com	**SITE LOCATION MAP** East Valley Cattle 2735 E 700 S Declo, Idaho	DRAWN BY: C. Erickson REVISED BY: C. Erickson CHECKED BY: K. Wetzel FIGURE **1**
DRAWN: April 2008 APPROVED BY:	PROJECT NO. 93476 FILE NAME:	



SOURCE: USGS 1:24,000 SCALE QUADRANGLE MAP: Shoshone SW, Idaho 1992

1 0.5 0 0.5 1

APPROXIMATE SCALE IN MILES

KLEINFELDER

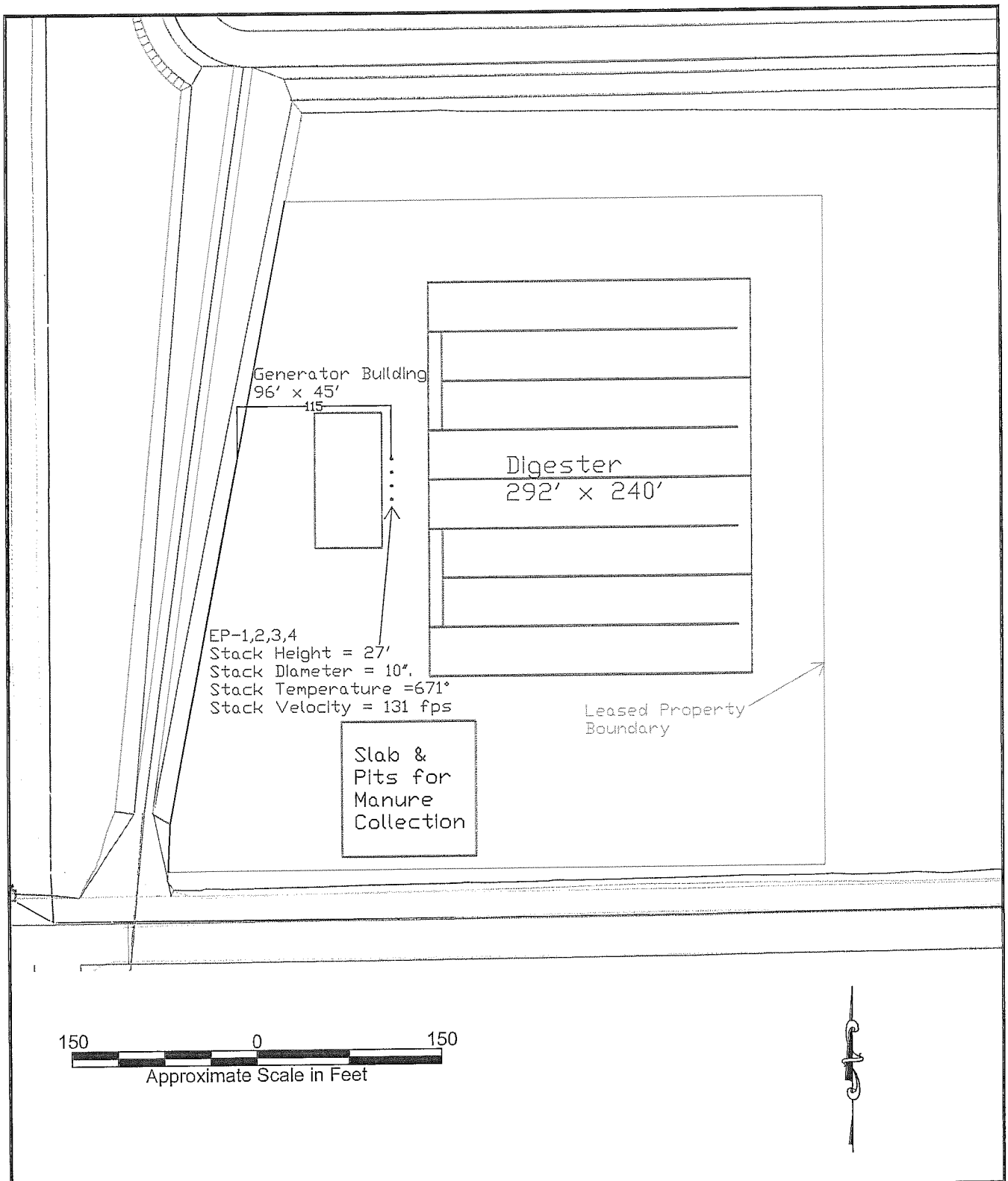
2315 S. Cobalt Point Way
Meridian, Idaho 83642
PH. 208-893-9700 FAX. 208-893-9703
www.kleinfelder.com

VICINITY MAP

East Valley Cattle
2735 E 700 S
Declo, Idaho

DRAWN BY: C. Erickson
REVISED BY: C. Erickson
CHECKED BY: K. Wetzel
FIGURE
2

DRAWN: April 2008 | APPROVED BY: | PROJECT NO. 93476 | FILE NAME:



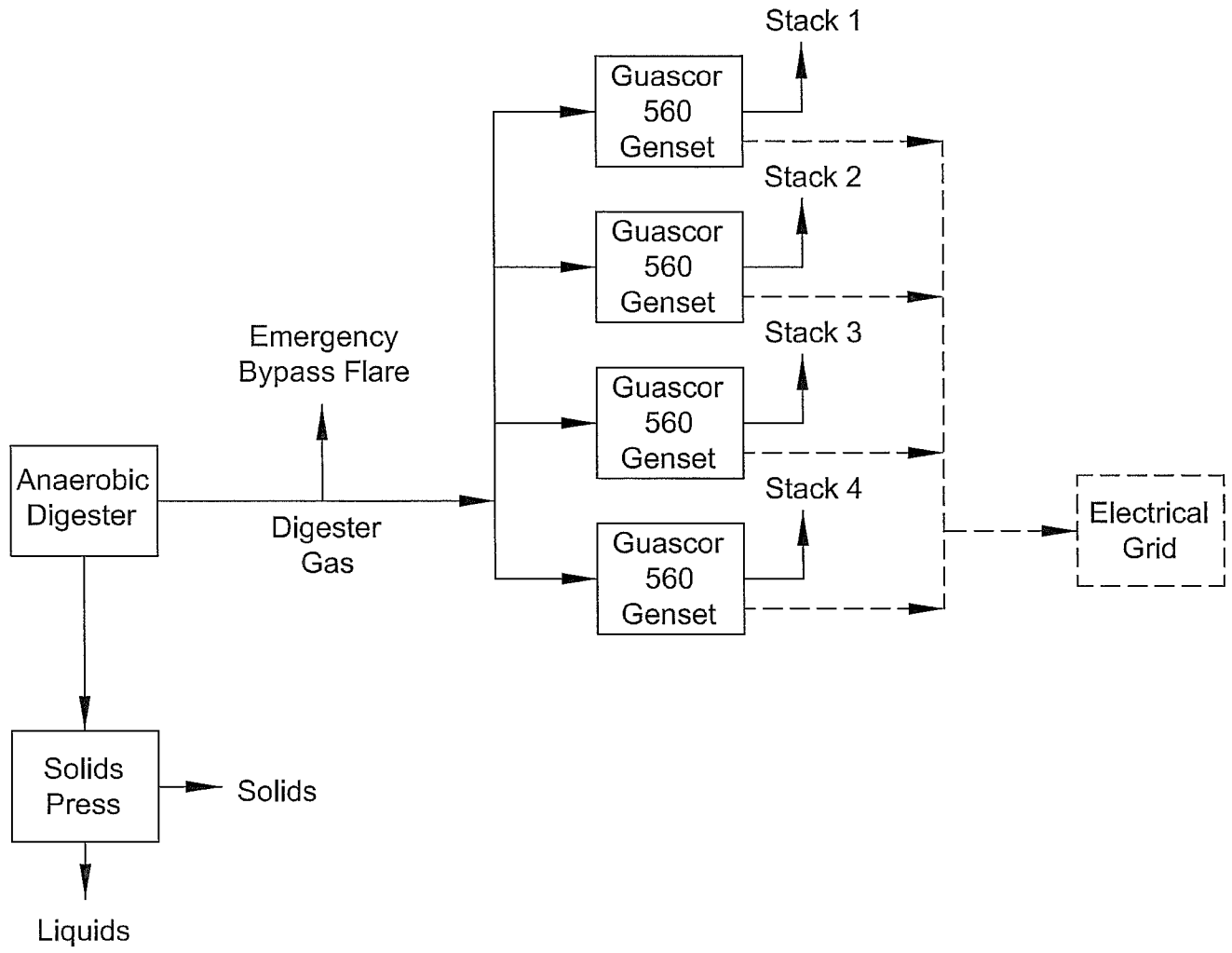
KLEINFELDER
2315 S. Cobalt Point Way
Meridian, Idaho 83642
PH. 208-893-9700 FAX. 208-893-9703
www.kleinfelder.com

SITE DETAIL

East Valley Cattle
2735 E 700 S
Declo, Idaho

DRAWN BY:	C. Erickson
REVISED BY:	C. Erickson
CHECKED BY:	K. Wetzel
FIGURE	3

DRAWN: April 2008 | APPROVED BY: | PROJECT NO. 93476 | FILE NAME:



KLEINFELDER

2315 S. Cobalt Point Way
Meridian, Idaho 83642
PH: 208-893-9700 FAX: 208-893-9703
www.kleinfelder.com

PROCESS FLOW DIAGRAM

East Valley Cattle
2735 E 700 S
Declo, Idaho

DRAWN BY:	C.Erickson
REVISED BY:	C. Erickson
CHECKED BY:	K. Wetzel
FIGURE	4

DRAWN: April 2008	APPROVED BY:	PROJECT NO. 93476	FILE NAME:

KLEINFELDER
Bright People. Right Solutions.

APPENDIX A

Permit to Construct Application Forms

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
04/03/07

Please see instructions on page 2 before filling out the form.

DEQ USE ONLY
Date Received
Project Number
Payment / Fees Included? Yes ☐ No ☐
Check Number

COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER

1. Company Name	Cargill Environmental Finance		
2. Facility Name	East Valley Cattle	3. Facility ID No.	1
4. Brief Project Description - One sentence or less	Dairy Anaerobic Digester which captures biogas to produce electricity through gensets.		

PERMIT APPLICATION TYPE

5. ☒ New Facility ☐ New Source at Existing Facility ☐ Unpermitted Existing Source
☐ Modify Existing Source: Permit No.:_____ Date Issued:_____
☐ Required by Enforcement Action: Case No.:_____

6. ☒ Minor PTC ☐ Major PTC

FORMS INCLUDED

Included	N/A	Forms	DEQ Verify
☒	☐	Form GI – Facility Information	☐
☐	☒	Form EU0 – Emissions Units General	☐
☒	☐	Form EU1 - Industrial Engine Information Please Specify number of forms attached: _____	☐
☐	☒	Form EU2 - Nonmetallic Mineral Processing Plants Please Specify number of forms attached: _____	☐
☐	☒	Form EU3 - Spray Paint Booth Information Please Specify number of forms attached: _____	☐
☐	☒	Form EU4 - Cooling Tower Information Please Specify number of forms attached: _____	☐
☐	☒	Form EU5 – Boiler Information Please Specify number of forms attached: _____	☐
☐	☒	Form HMAP – Hot Mix Asphalt Plant Please Specify number of forms attached: _____	☐
☐	☒	Form CBP - Concrete Batch Plant Please Specify number of forms attached: _____	☐
☐	☒	Form BCE - Baghouses Control Equipment	☐
☐	☒	Form SCE - Scrubbers Control Equipment	☐
☒	☐	Forms EI-CP1 - EI-CP4 - Emissions Inventory– criteria pollutants (Excel workbook, all 4 worksheets)	☐
☒	☐	PP – Plot Plan	☐
☒	☐	Forms MI1 – MI4 – Modeling (Excel workbook, all 4 worksheets)	☐
☒	☐	Form FRA – Federal Regulation Applicability	☐

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/26/07

Please see instructions on page 2 before filling out the form.

All information is required. If information is missing, the application will not be processed.

IDENTIFICATION	
1. Company Name	Cargill Environmental Finanace
2. Facility Name (if different than #1)	East Valley Cattle
3. Facility I.D. No.	1
4. Brief Project Description:	Dairy Anaerobic Digester which captures biogas to produce electricity through gensets
FACILITY INFORMATION	
5. Owned/operated by: (√ if applicable)	☐ Federal government ☐ County government ☐ State government ☐ City government
6. Primary Facility Permit Contact Person/Title	Ryan Coleman - Project Engineer
7. Telephone Number and Email Address	208-345-2324 or/cell 208-340-6421 ryan_coleman@cargill.com
8. Alternate Facility Contact Person/Title	Gary Rimmey Senior Operations and Maintenance Manager
9. Telephone Number and Email Address	984-952-3887 gary_rimmey@cargill.com
10. Address to which permit should be sent	Mail stop 139 12700 Whitewater Dr. (AND) 1410 Camel Back Ln
11. City/State/Zip	Minnetonka, Minnesota 55343 Suite 229
12. Equipment Location Address (if different than #10)	Bettencourt B-6. Boise, ID 83702
13. City/State/Zip	3350 S. 2400 E. Jerome Idaho 83338
14. Is the Equipment Portable?	☐ Yes ☒ No
15. SIC Code(s) and NAISC Code	Primary SIC: 1629 Secondary SIC (if any): NAICS: 237130
16. Brief Business Description and Principal Product	Anaerobically digest cow manure and capture methane to power engine and produce electricity.
17. Identify any adjacent or contiguous facility that this company owns and/or operates	
PERMIT APPLICATION TYPE	
18. Specify Reason for Application	☒ New Facility ☐ New Source at Existing Facility ☐ Unpermitted Existing Source ☐ Modify Existing Source: Permit No.:_____ Date Issued: _____ ☐ Permit Revision ☐ Required by Enforcement Action: Case No.:_____
CERTIFICATION	
IN ACCORDANCE WITH IDAPA 58.01.01.123 (RULES FOR THE CONTROL OF AIR POLLUTION IN IDAHO), I CERTIFY BASED ON INFORMATION AND BELIEF FORMED AFTER REASONABLE INQUIRY, THE STATEMENTS AND INFORMATION IN THE DOCUMENT ARE TRUE, ACCURATE, AND COMPLETE.	
19. Responsible Official's Name/Title	Ryan Coleman - Project Engineer
20. RESPONSIBLE OFFICIAL SIGNATURE	Date: 5-12-08
21. ☒ Check here to indicate you would like to review a draft permit prior to final issuance.	

Emissions Units - Industrial Engine Information **Form EU1**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
Cargill Environmental Finance	East Valley Cattle	1
Brief Project Description:	Dairy Anaerobic Digester that collects biogas & makes electricity	

EXEMPTION

Please refer to IDAPA 58.01.01.222.01.c and d for a list of internal combustion engines that are exempt from the Permit to Construct requirements.

ENGINE (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS

1. Type of Unit: ☒ New Unit ☐ Unpermitted Existing Unit
☐ Modification to a Unit with Permit #: Date Issued:

2. Use of Engine: ☐ Normal Operation ☐ Emergency ☐ Back-up ☒ Other: Renewable Energy

3. Engine ID Number:	4. Rated Power:	
1	☒ 1057 Brake Horsepower(bhp)	☒ 710 Kilowatts(kW)
5. Construction Date:	6. Manufacturer:	7. Model:
5/27/08	Guascor	SFGLD 560
8. Date of Modification (if applicable):	9. Serial Number (if available):	10. Control Device (if any):

FUEL DESCRIPTION AND SPECIFICATIONS

11. Fuel Type	☐ Diesel Fuel (#) (gal/hr)	☐ Gasoline Fuel (gal/hr)	☐ Natural Gas (cf/hr)	☒ Other Fuels (unit:cf/hr)
12. Full Load Consumption Rate				12,185
13. Actual Consumption Rate				11,875
14. Sulfur Content wt%		N/A	N/A	

OPERATING LIMITS & SCHEDULE

15. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.):

16. Operating Schedule (hours/day, months/year, etc.):
24 hours a day 365 days a year

Emissions Units - Industrial Engine Information **Form EU1**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION		
Company Name: Cargill Environmental Finance	Facility Name: East Valley Cattle	Facility ID No: 1
Brief Project Description:	Dairy Anaerobic Digester that collects biogas & makes electricity	

EXEMPTION

Please refer to IDAPA 58.01.01.222.01.c and d for a list of internal combustion engines that are exempt from the Permit to Construct requirements.

ENGINE (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS

1. Type of Unit: ☒ New Unit ☐ Unpermitted Existing Unit ☐ Modification to a Unit with Permit #: Date Issued:

2. Use of Engine: ☐ Normal Operation ☐ Emergency ☐ Back-up ☒ Other: Renewable Energy

3. Engine ID Number:	4. Rated Power:	
2	☒ 1057 Brake Horsepower(bhp)	☒ 710 Kilowatts(kW)
5. Construction Date: 5/27/08	6. Manufacturer: Guascor	7. Model: SFGLD 560
8. Date of Modification (if applicable):	9. Serial Number (if available):	10. Control Device (if any):

FUEL DESCRIPTION AND SPECIFICATIONS

11. Fuel Type	☐ Diesel Fuel (#) (gal/hr)	☐ Gasoline Fuel (gal/hr)	☐ Natural Gas (cf/hr)	☒ Other Fuels (unit:cf/hr)
12. Full Load Consumption Rate				12,185
13. Actual Consumption Rate				11,875
14. Sulfur Content wt%		N/A	N/A	

OPERATING LIMITS & SCHEDULE

15. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.):

16. Operating Schedule (hours/day, months/year, etc.):
24 hours a day 365 days a year

Emissions Units - Industrial Engine Information **Form EU1**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION		
Company Name: Cargill Environmental Finance	Facility Name: East Valley Cattle	Facility ID No: 1
Brief Project Description:	Dairy Anaerobic Digester that collects biogas & makes electricity	

EXEMPTION

Please refer to IDAPA 58.01.01.222.01.c and d for a list of internal combustion engines that are exempt from the Permit to Construct requirements.

ENGINE (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS

1. Type of Unit: ☒ New Unit ☐ Unpermitted Existing Unit ☐ Modification to a Unit with Permit #: Date Issued:

2. Use of Engine: ☐ Normal Operation ☐ Emergency ☐ Back-up ☒ Other: Renewable Energy

3. Engine ID Number:	4. Rated Power:	
3	☒ 1057 Brake Horsepower(bhp)	☒ 710 Kilowatts(kW)
5. Construction Date: 5/27/08	6. Manufacturer: Guascor	7. Model: SFGLD 560
8. Date of Modification (if applicable):	9. Serial Number (if available):	10. Control Device (if any):

FUEL DESCRIPTION AND SPECIFICATIONS

11. Fuel Type	☐ Diesel Fuel (#) (gal/hr)	☐ Gasoline Fuel (gal/hr)	☐ Natural Gas (cf/hr)	☒ Other Fuels (unit:cf/hr)
12. Full Load Consumption Rate				12,185
13. Actual Consumption Rate				11,875
14. Sulfur Content wt%		N/A	N/A	

OPERATING LIMITS & SCHEDULE

15. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.):

16. Operating Schedule (hours/day, months/year, etc.):
24 hours a day 365 days a year

Emissions Units - Industrial Engine Information **Form EU1**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION		
Company Name: Cargill Environmental Finance	Facility Name: East Valley Cattle	Facility ID No: 1
Brief Project Description:	Dairy Anaerobic Digester that collects biogas & makes electricity	

EXEMPTION

Please refer to IDAPA 58.01.01.222.01.c and d for a list of internal combustion engines that are exempt from the Permit to Construct requirements.

ENGINE (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS

1. Type of Unit: ☒ New Unit ☐ Unpermitted Existing Unit ☐ Modification to a Unit with Permit #: Date Issued:

2. Use of Engine: ☐ Normal Operation ☐ Emergency ☐ Back-up ☒ Other: Renewable Energy

3. Engine ID Number:	4. Rated Power:	
4	☒ 1057 Brake Horsepower(bhp) ☒ 710 Kilowatts(kW)	
5. Construction Date: 5/27/08	6. Manufacturer: Guascor	7. Model: SFGLD 560
8. Date of Modification (if applicable):	9. Serial Number (if available):	10. Control Device (if any):

FUEL DESCRIPTION AND SPECIFICATIONS

11. Fuel Type	☐ Diesel Fuel (#) (gal/hr)	☐ Gasoline Fuel (gal/hr)	☐ Natural Gas (cf/hr)	☒ Other Fuels (unit:cf/hr)
12. Full Load Consumption Rate				12,185
13. Actual Consumption Rate				11,875
14. Sulfur Content wt%		N/A	N/A	

OPERATING LIMITS & SCHEDULE

15. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.):

16. Operating Schedule (hours/day, months/year, etc.):
24 hours a day 365 days a year

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION
Revision 3
4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	**Cargill Environmental Finance**
Facility Name:	East Valley Cattle
Facility ID No.:	1
Brief Project Description:	Dairy Anaerobic Digester which captures biogas to produce electricity through gensets.

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_X		CO		VOC		Lead	
Emissions units	Stack ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													
Guascor 560	1.00	6.94E-02	3.04E-01	5.01	21.95	2.33	10.21	5.12	22.43	2.33	10.21	N/A	N/A
Guascor 560	2.00	6.94E-02	3.04E-01	5.01	21.95	2.33	10.21	5.12	22.43	2.33	10.21	N/A	N/A
Guascor 560	3.00	6.94E-02	3.04E-01	5.01	21.95	2.33	10.21	5.12	22.43	2.33	10.21	N/A	N/A
Guascor 560	4.00	6.94E-02	3.04E-01	5.01	21.95	2.33	10.21	5.12	22.43	2.33	10.21	N/A	N/A
Reduction in CH4													
Stack #1 = -1,164 Tons/year													
Stack #2 = -1,164 Tons/year													
Stack #3 = -1,164 Tons/year													
Stack #4 = -1,164 Tons/year													
Acetaldehyde		1.47E-03	6.45E-03										
Acrolein		7.22E-04	3.16E-03										
Benzene		1.92E-02	8.39E-02										
Dichloromethane		2.80E-03	1.23E-02										
Formaldehyde		5.28E-03	2.31E-02										
Isomers of Xylene		3.80E-03	1.66E-02										
Nickel		5.56E-05	2.43E-04										
Selenium		3.06E-04	1.34E-03										
Styrene		1.46E-03	6.40E-03										
Toluene		7.28E-03	3.19E-02										
Trichloroethylene		5.56E-04	2.43E-03										
Vinyl Chloride		1.56E-03	6.81E-03										
Total				20.04	87.80	9.32	40.84	20.48	89.72	9.32	40.84		

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION
Revision 2
4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Cargill Environmental Finance
Facility Name:	East Valley Cattle
Facility ID No.:	1
Brief Project Description:	Dairy Anaerobic Digester which captures biogas to produce electricity through gensets.

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - FUGITIVE SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_X		CO		VOC		Lead	
Fugitive Source Name	**Fugitive ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Fugitive Source(s)													
name of fugitive source1													
name of fugitive source2													
name of fugitive source3													
name of fugitive source4													
name of fugitive source5													
name of fugitive source6													
name of fugitive source7													
name of fugitive source8													
name of fugitive source9													
name of fugitive source10													
name of fugitive source11													
name of fugitive source12													
name of fugitive source13													
name of fugitive source14													
name of fugitive source15													
name of fugitive source16													
name of fugitive source17													
name of fugitive source18													
name of fugitive source19													
name of fugitive source20													
name of fugitive source21													
(insert more rows as needed)													
Total													

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 3 4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Cargill Environmental Finance
Facility Name:	East Valley Cattle
Facility ID No.:	1
Brief Project Description:	Dairy Anaerobic Digester which captures biogas to produce electricity through gensets.

SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_X		CO		VOC		Lead	
Emissions units	**Stack ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Point Source(s)													
name of the emissions unit1													
name of the emissions unit2													
name of the emissions unit3													
name of the emissions unit4													
name of the emissions unit5													
name of the emissions unit6													
name of the emissions unit7													
name of the emissions unit8													
name of the emissions unit9													
name of the emissions unit10													
name of the emissions unit11													
name of the emissions unit12													
name of the emissions unit13													
name of the emissions unit14													
name of the emissions unit15													
name of the emissions unit16													
name of the emissions unit17													
name of the emissions unit18													
name of the emissions unit19													
name of the emissions unit20													
name of the emissions unit21													
(insert more rows as needed)													
Total													

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

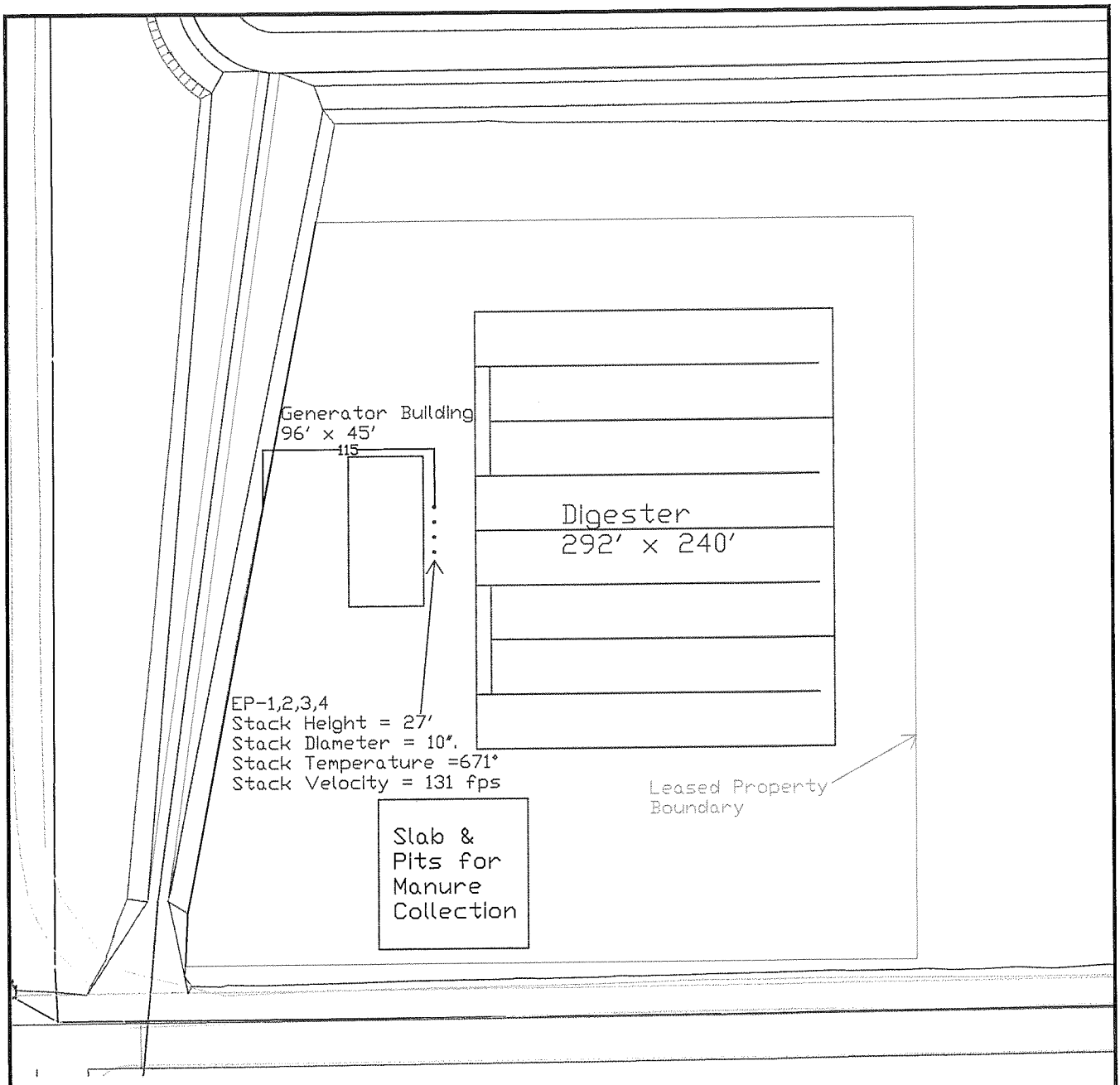
PERMIT TO CONSTRUCT APPLICATION
Revision 3
4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Cargill Environmental Finance
Facility Name:	East Valley Cattle
Facility ID No.:	1
Brief Project Description:	Dairy Anaerobic Digester which captures biogas to produce electricity through gensets.

SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - FUGITIVE SOURCES

1.	2.	3. Air Pollutant Maximum Change in Emissions Rate (lbs/hr or t/yr)											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Fugitive Source Name	**Fugitive ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Fugitive Source(s)													
name of fugitive source1													
name of fugitive source2													
name of fugitive source3													
name of fugitive source4													
name of fugitive source5													
name of fugitive source6													
name of fugitive source7													
name of fugitive source8													
name of fugitive source9													
name of fugitive source10													
name of fugitive source11													
name of fugitive source12													
name of fugitive source13													
name of fugitive source14													
name of fugitive source15													
name of fugitive source16													
name of fugitive source17													
name of fugitive source18													
name of fugitive source19													
name of fugitive source20													
name of fugitive source21													
(insert more rows as needed)													
Total													



150 0 150

Approximate Scale in Feet

KLEINFELDER

2315 S. Cobalt Point Way
Meridian, Idaho 83642
PH. 208-893-9700 FAX. 208-893-9703
www.kleinfelder.com

SITE DETAIL

East Valley Cattle
2735 E 700 S
Declo, Idaho

DRAWN BY: C. Erickson

REVISED BY: C. Erickson

CHECKED BY: K. Wetzel

FIGURE

3

DRAWN: April 2008 | APPROVED BY: _____ | PROJECT NO. 93476 | FILE NAME:

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Cargill Environmental Finance
Facility Name:	East Valley Cattle
Facility ID No.:	1
Brief Project Description:	Dairy anaerobic digester which captures biogas to produce electricity through gensets.

SUMMARY OF AIR IMPACT ANALYSIS RESULTS - CRITERIA POLLUTANTS

		1.		2.	3.	4.		5.
Criteria Pollutants	**Averaging Period**	**Significant Impact Analysis Results (µg/m3)**	**Significant Contribution Level (µg/m3)**	**Full Impact Analysis Results (µg/m3)**	**Background Concentration (µg/m3)**	**Total Ambient Impact (µg/m3)**	**NAAQS (µg/m3)**	**Percent of NAAQS**
PM_{10}	24-hour	4.09	5	4.09	73.00	77.09	150	51%
	Annual	0.82	1	0.82	26.00	26.82	50	54%
SO_2	3-hr	664.90	25	664.90	34.00	698.90	1300	54%
	24-hr	295.51	5	295.51	26.00	321.51	365	88%
	Annual	59.10	1	59.10	8.00	67.10	80	84%
NO_2	Annual	20.61	1	20.61	17.00	37.61	100	38%
CO	1-hr	755.75	2000	755.75	3,600.00	4,355.75	10000	44%
	8-hr	529.03	500	529.03	2,300.00	2,829.03	40000	7%